

BULLETIN

OF THE INSTITUTE OF METALS

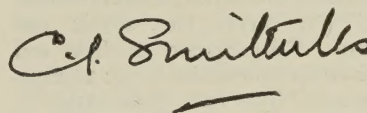
VOLUME I

JANUARY 1953

PART 17

NEW YEAR MESSAGE FROM THE PRESIDENT

It gives me great pleasure to take this opportunity of wishing all members of the Institute a very Happy and Prosperous New Year. The Institute will continue to render you all the service it can, and in turn counts on your support.



LONDON.

DECEMBER, 1952.

INSTITUTE NEWS

Spring Meeting, London, Monday–Thursday, 23–26 March 1953

The 1953 Annual General Meeting will be held in London from Monday to Thursday, 23–26 March, inclusive. All the scientific and technical sessions and a Dinner-Dance will be held at the Park Lane Hotel, Piccadilly, W.1.

The meeting will begin with the Annual May Lecture by Sir Christopher Hinton.

On the following day the Institute's Medals will be presented, and the new President will be inducted into the Chair and will deliver an Address. As a measure of economy, no Luncheon will be held in connection with this meeting, but there will be a Dinner-Dance, at which it is hoped that there will be a large attendance.

On the Wednesday there will be held the first of a series of three annual all-day Symposia on the control of quality in the production of wrought non-ferrous materials, and on the evening of that day a *Conversazione* and Exhibition will be held at the Institute's headquarters at 4 Grosvenor Gardens, S.W.1.

The meeting will end with a series of visits and, as an experiment, an all-day tour for ladies has been arranged, which it is hoped will be popular.

In view of their success at the 1952 Spring Meeting and at the Autumn Meeting at Oxford, simultaneous sessions on widely differing subjects will also be held.

The programme of the meeting is printed on pp. 134–136 of this issue. No separate programme is being printed in connection with this meeting, a **Meeting Reply Form** for which is sent with this issue of the **Journal**.

The Council hopes that there will be a large attendance at this meeting. Members are encouraged to bring as many friends as possible to the May Lecture, for which tickets of admission are not required.

It is particularly requested that those who intend to take part in the meeting will return the Reply Form at the earliest possible moment (and, if possible, not later than 18 March). The arrangements for the meeting are rendered difficult if members leave the return of their Reply Forms until the very last moment.

Members requiring hotel accommodation in London are advised to book their rooms early.

INSTITUTE NEWS

PROGRAMME

Monday, 23 March

Location : Royal Institution, Albemarle Street, W.1.

6.0 p.m.—Forty-Third Annual May Lecture, by Sir CHRISTOPHER HINTON, M.A., M.I.C.E., M.I.Mech.E. (Deputy Controller of Atomic Energy (Production), Ministry of Supply) on "THE PRESENT AND FUTURE METALLURGICAL REQUIREMENTS OF THE CHEMICAL ENGINEER".

Tuesday, 24 March

Location : Park Lane Hotel, Piccadilly, W.1 (Tudor Room).

10.30 a.m.—ANNUAL GENERAL MEETING.

Report of Council.

Report of the Honorary Treasurer.

Presentation of:

(a) Institute of Metals (Platinum) Medal.

(b) W. H. A. Robertson Medal.

(c) Rosenhain Medal.

(d) Students' Essay Competition Prizes.

Induction of the new President, Professor F. C. Thompson, D.Met., M.Sc.

Votes of thanks to retiring officers.

PRESIDENTIAL ADDRESS, by PROFESSOR F. C. THOMPSON.

12.45 p.m.—Adjournment.

2.30 p.m.—Scientific session. The following papers (the references are to the *Journal*) will be discussed:

(1) *Jointly*: V. A. PHILLIPS and A. PHILLIPS: "The Effect of Certain Solute Elements on the Recrystallization of Copper" (No. 1431; Dec. 1952); and H. M. MIEKE-OJA: "Segregation of Iron and Phosphorus at the Grain Boundaries in 70:30 Brass During Grain Growth" (No. 1382; June 1952).

(2) *Theme*: *Young's Modulus of Alloys*.

Jointly: A. D. N. SMITH: "A Study of Some Factors Influencing the Young's Modulus of Solid Solutions" (No. 1370; May 1952); and N. DUDZINSKI: "The Young's Modulus, Poisson's Ratio, and Rigidity Modulus of Some Aluminium Alloys" (No. 1414; Sept. 1952).

5.0 p.m.—Adjournment.

7.0 for 7.30 p.m.—DINNER-DANCE, at the Park Lane Hotel, Piccadilly, W.1. *Dress*: Evening dress (tails or dinner jacket) or uniform with decorations. (Tickets price 32s. each, inclusive of coffee and gratuities, but exclusive of drinks.) Tables can be booked for parties of from 6 to 12 (incl.); others are requested to state a preference regarding seating.

Wednesday, 25 March

Two concurrent scientific and technical sessions, and an all-day programme for Ladies.

SESSION "A"

Location : Park Lane Hotel, Piccadilly, W.1. (Tudor Room).

9.30 a.m.—SYMPOSIUM ON "THE CONTROL OF QUALITY IN THE PRODUCTION OF WROUGHT NON-FERROUS METALS AND ALLOYS. PART I.—THE CONTROL OF QUALITY IN MELTING AND CASTING", arranged by the Metallurgical Engineering Committee. An all-day General Discussion, based on the following

papers, which will be published in the March issue of the *Journal* (to be distributed to Members at the end of February):

(1) "The Principles of Technical Control in Metallurgical Manufacture", by A. R. E. Singer, Ph.D., B.Sc. (Senior Lecturer, Department of Industrial Metallurgy, University of Birmingham).

(2) "Control of Quality in Melting and Casting Aluminium Alloys for Working", by R. T. Staples and H. J. Hurst (T.I. Aluminium, Ltd., Birmingham).

(3) "Control of Quality in the Melting and Casting of Copper and High-Conductivity Copper-Base Alloys", by J. Sykes, F.I.M. (Enfield Copper Refining Co., Ltd., Brimsdown, Enfield).

(4) "Control of Quality in Melting and Casting Brass", by Maurice Cook, D.Sc., Ph.D., F.I.M., and C. L. M. Cowley, B.Sc., A.I.M. (Imperial Chemical Industries, Ltd., Metals Division, Witton, Birmingham).

(5) "Control of Quality in the Melting and Casting of Magnesium and Its Alloys", by R. G. Wilkinson, B.Sc. (Magnesium Elektron, Ltd., Clifton Junction).

(6) "The Control of Quality in the Casting of Zinc and Zinc Alloy Rolling Slabs and Extrusion Billets", by C. W. Roberts, B.Sc., A.I.M., and B. Walters, M.A. (Imperial Smelting Corporation, Ltd., Avonmouth).

12.45 p.m.—Adjournment.

2.30 p.m.—Symposium resumed.

5.0 p.m.—Conclusion of Symposium.

SESSION "B"

Location : Park Lane Hotel, Piccadilly, W.1 (Smoke Room).

9.30 a.m.—Scientific session. The following papers (references are to the *Journal*) will be discussed:

(1) *Theme*: *Corrosion of Alloys*.

Jointly: P. BRENNER and G. J. METCALFE: "The Effect of Cold Work on the Microstructure and Corrosion-Resistance of Aluminium-5% Magnesium Alloys Containing 0.1% Zinc" (No. 1441; Jan. 1953); G. J. METCALFE: "Atmospheric Corrosion and Stress-Corrosion of Aluminium-Copper-Magnesium and Aluminium-Magnesium-Silicon Alloys" (Feb. 1953); and C. W. ROBERTS: "Inter-crystalline Corrosion in Cast Zinc-Aluminium Alloys" (Feb. 1953).

(2) *Theme*: *High-Temperature Oxidation of Alloys*.

Jointly: A. PREECE and G. LUCAS: "The High-Temperature Oxidation of Some Cobalt-Base and Nickel-Base Alloys" (No. 1435; Dec. 1952); and J. P. DENNISON and A. PREECE: "High-Temperature Oxidation Characteristics of a Group of Oxidation-Resistant Copper-Base Alloys" (No. 1436; Jan. 1953).

12.45 p.m.—Adjournment.

2.30 p.m.—Scientific session. Discussion of the following papers:

Theme: *Creep and Plastic Deformation*.

A General Discussion based on the following papers:

W. A. RACHINGER: "The Effect of Grain-Size on the Structural Changes Produced in Aluminium by

Slow Deformation" (No. 1363; April 1952); W. A. Wood and J. W. SUITER: "Stress-Recovery in Aluminium" (No. 1373; May 1952); D. McLEAN: "Creep Processes in Coarse-Grained Aluminium" (No. 1374; May 1952); J. TROTTER: "Electron-Microscopic Studies of Slip in Aluminium during Creep" (No. 1375; May 1952); K. E. PUTTICK and R. KING: "Boundary Slip in Bicrystals of Tin" (No. 1378; June 1952); G. B. GREENOUGH, (Mrs.) C. M. BATEMAN, and (Mrs.) E. M. SMITH: "X-Ray Diffraction Studies in Relation to Creep" (No. 1379; June 1952); W. A. RACHINGER: "Relative Grain Translations in the Plastic Flow of Aluminium" (No. 1412; Sept. 1952); J. A. RAMSEY: "The Recovery of Polycrystalline Aluminium" (No. 1416; Oct. 1952); S. BHATTACHARYA, W. K. A. CONGREVE, and F. C. THOMPSON: "The Creep/Time Relationship under Constant Tensile Stress" (No. 1420; Oct. 1952); A. E. JOHNSON and N. E. FROST: "The Temperature Dependence of Transient and Secondary Creep of an Aluminium Alloy to British Standard 2L42 at Temperatures Between 20° and 250° C. and at Constant Stress" (No. 1421; Oct. 1952); D. McLEAN: "Crystal Slip in Aluminium During Creep" (No. 1425; Nov. 1952); (Mrs.) V. M. URIE and H. L. WAIN: "Plastic Deformation of Coarse-Grained Aluminium" (No. 1427; Nov. 1952); J. W. SUITER and W. A. WOOD: "Deformation of Magnesium at Various Rates and Temperatures" (No. 1430; Dec. 1952); J. A. RAMSEY: "The Sub-Grain Structure in Aluminium Deformed at Elevated Temperatures" (No. 1434; Dec. 1952); D. McLEAN: "Crystal Fragmentation in Aluminium During Creep" (Feb. 1953); D. McLEAN: "Grain Boundary Slip During Creep of Aluminium" (Feb. 1953).

5.0 p.m.—Conclusion of session.

Location: 4 Grosvenor Gardens, S.W.1.

8.0 p.m.—CONVERSAZIONE AND EXHIBITION. Guests (including ladies) will be welcome. *Dress*: Lounge suit. (Tickets, price 4s., including light refreshments.)

Note: The Secretary will be pleased to receive offers of suitable exhibits.

LADIES' PROGRAMME

10.0 a.m.—ALL-DAY SIGHT-SEEING TOUR, with Guide, to WINDSOR, including the State Apartments and St. George's Chapel, and HAMPTON COURT. Lunch at Windsor; tea at Hampton Court. (Price of ticket, 25s., including lunch, tea, transport, guide, gratuities, and admission.)

Note: If the State Apartments are NOT open, the tour will NOT take place.

Thursday, 26 March PROGRAMME "A"

Location: Park Lane Hotel, Piccadilly, W.1 (Tudor Room).

10.0 a.m.—12.30 p.m.—Informal Discussion on "Liquid Metals" arranged by the Metal Physics Committee.

PROGRAMME "B"

9.45 a.m.—Visits to the following works and laboratories, particulars of which are published below.

(1) BRITISH NON-FERROUS METALS RESEARCH ASSOCIATION, Euston Street, N.W.1.

(2) THE PYRENE CO., LTD., Brentford, Middlesex (morning); followed by

HOOVER, LTD., Perivale, Greenford, Middlesex (afternoon). (Lunch will be arranged.)

(3) VICKERS-ARMSTRONGS, LTD., Weybridge. (Lunch by invitation.)

Transport will start promptly from outside the Park Lane Hotel. The price of tickets for each visit is stated on the reply form.

BRIEF DESCRIPTIONS OF WORKS AND LABORATORIES TO BE VISITED

The British Non-Ferrous Metals Research Association

Euston Street, London, N.W.1

The Association started in 1921 in Birmingham; the first year's income was under £6000 and the membership 20. Its own laboratories were first established in 1930 on the present site, but have been greatly enlarged to serve an increasing membership, which now totals about 575 firms producing, manufacturing, or using non-ferrous metals. The annual income is over £100,000. The staff number 155, including about 50 graduates.

The laboratories include, in addition to equipment for general metallography and heat-treatment, apparatus for the determination of gases in metals and for the study of gas/metal reactions; a Physics Section, in which the techniques of X-ray crystallography, electron diffraction, and electron microscopy are applied to metallurgical research; a Mechanical Testing Section, equipped for tensile, fatigue, and creep testing of metals; an Experimental Foundry; an Experimental Metal-Working Shop, equipped with a 500-ton hydraulic press, 12-in. rolling mill, draw-bench, furnaces, and ancillary equipment; an Electrodeposition Laboratory; a Section devoted to the study of the corrosion of non-ferrous metals and to the development of corrosion-resistant alloys for special applications; laboratories for chemical and spectrographic analysis; and a fully-equipped workshop in which much of the Association's research equipment is made.

A comprehensive technical library and information service is maintained; loans to members exceed 9000 items a year. Through the Liaison and Technical Service Department, a free confidential technical enquiry service is maintained for members and assistance is given in the practical application of the results of the Association's researches.

Hoover, Ltd., Perivale

Hoover cleaners first came to Britain after World War I. At first all the cleaners came from the United States and later from Canada, but in 1931 it was decided to manufacture in Britain, and the factory at Perivale was begun. During World War II, 17 British Hoover factories produced electrical and other equipment for the war effort. Since the war there has been a great expansion in the production of domestic and light electrical products.

The Perivale factory remains the home of the famous electric cleaner, and some 2000 people work there. Among the operations that will be seen during the visit are: the pressure die-casting of aluminium alloys; the making and heat-treatment of the tools for die-casting and also for Bakelite moulding; pressworking of ferrous and non-ferrous materials;

production of laminations for electric motors; metal-finishing processes, including plating and enamelling; and the assembly of motors and vacuum cleaners.

The Pyrene Co., Ltd., Brentford

Although this firm is perhaps most widely known for its fire extinguishers, its factory on the Great West Road also has a large metal-finishing department where the "Bonderizing", "Parkerizing", and "Pylumin" processes are carried out.

Vickers-Armstrongs, Ltd., Weybridge

At these works civil and military aircraft and guided weapons are designed and manufactured.

In addition to the current production of such aeroplanes as the *Viscount* and the *Valiant*, considerable research work is carried out. Some of a fundamental nature is concerned with aerodynamics, structures, and properties of materials under varying conditions of temperature, pressure, humidity, &c.

The research equipment additional to a Materials Laboratory includes a supersonic duct, a near-sonic-speed wind-tunnel, and a very large chamber (25 by 50 ft) in which it is possible to produce atmospheres varying from one equivalent to ground level at the equator to one 100,000 ft. above the earth.

Institute of Metals (Platinum) Medal

Mr. W. S. Robinson, to whom the Institute of Metals (Platinum) Medal for 1952 was awarded last March, recently received the Medal from the hands of the Governor-General of Australia at a private meeting.

Election of Members

The following 11 Ordinary Members, 4 Junior Members, and 15 Student Members were elected on 19 November 1952:

As Ordinary Members

- BISHOP, Edward, B.Sc., Technical Assistant to Metals Economy Adviser, Ministry of Supply, Shell-Mex House, London, W.C.2.
- BUZZARD, Robert W., B.S., Research Metallurgist, National Bureau of Standards, U.S. Department of Commerce, Washington 25, D.C., U.S.A.
- CHISHOLM, Donald William, Standards Engineer, The English Electric Co., Ltd., Rugby.
- CONARD, George P., Sc.D., M.S., Assistant Professor of Metallurgy, Lehigh University, Bethlehem, Pa., U.S.A.
- CRUSSARD, Charles, Head, Metal Physics Department, L'Institut de Recherches de la Sidérurgie, St. Germain-en-Laye (S. et O.), France.
- HOUDREMONT, Professor Eduard, Dr. Ing., Professor of Metallurgy, Technische Hochschule, Aachen, Germany.
- KÖHN, Wilhelm, Technical Director, Hindrichs-Auffermann A.G., Wuppertal-Oberbarmen, Germany.
- LACHENAUD, René, Chef du Laboratoire Central, Société Nationale de Constructions Aéronautiques du Sud-Ouest, 2 rue de Larnac, Courbevoie (Seine), France.
- LEVY, Frank M., B.Chem., Technical Superintendent, Mueller Brass Company, Port Huron, Mich., U.S.A.
- WADDELL, Thomas, Metallurgist, Royal Ordnance Factory, Patricroft, Manchester.
- WINSOR, Reginald, Commissioner for Railways, Department of Railways, 19 York Street, Sydney, N.S.W., Australia.

As Junior Members

- BROWN, Gordon T., B.Sc., Junior Metallurgist, Quasi-Arc Co., Ltd., Bilston, Staffs.
- KLEIN, Wesley Graham, Assistant Chief Engineer, P.O. Box 127, Cowra 3W, N.S.W., Australia.
- LEACH, Anthony, B.Sc., A.R.I.C., Research Laboratories of The General Electric Co., Ltd., North Wembley, Middlesex.
- MARTIN, Edmund John, Glacier Metal Co., Ltd., Alperton, Wembley, Middlesex.

As Student Members

- BERKELEY, Kenneth Gordon Charles, Student of Metallurgy, Battersea Polytechnic, London, S.W.11.
- DUFF, Thomas, Student of Metallurgy, Royal Technical College, Glasgow.
- ELLIOTT, John Edward, Metallurgical Analyst, Electro-Refined Irons, Ltd., Taylor Street, Darwen, Lancs.
- GARDINER, Keith M., Student of Metallurgy, University of Manchester.
- GREEN, Frank Alan, Student of Metallurgy, Battersea Polytechnic, London, S.W.11.
- HEPPLESTON, Colin, Student of Metallurgy, University of Sheffield.
- KNAGGS, Kenneth, Student of Metallurgy, University of Sheffield.
- LOCKE, David Harold, B.Sc., Research Student, University of Birmingham.
- PARTRIDGE, Peter G., Student of Metallurgy, Bristol Aeroplane Co., Ltd., Filton, Bristol.
- ROBERTS, Peter Rowe, Student of Metallurgy, University of Manchester.
- SILLITOE, John Frederick, Stewarts and Lloyds, Ltd., Bilston, Staffs.
- TIPLADY, Geoffrey Rowland, Student of Metallurgy, University of Sheffield.
- VICKERS, Walter, Student of Metallurgy, University of Sheffield.
- WATKINSON, F., Student of Metallurgy, Battersea Polytechnic, London, S.W.11.
- WRIGHT, Mark, Student of Metallurgy, University of Liverpool.

The following 7 Ordinary Members, 3 Junior Members, and 18 Student Members were elected on 12 December 1952:

As Ordinary Members

- DEISINGER, Walter, Dr. Ing., Director, Vakuumschmelze A.G., Hanau, Western Germany.
- DEWSNAP, Noel F., B.Met.E., Instructor, School of Mines, Ballarat, Vic., Australia.
- INSHAW, Howard Austen, Works Manager, Maudslay Motor Co., Ltd., Castle Maudslay, Alcester, Warwickshire.
- METZGER, Guinn E., Met.Eng., Royal School of Mines, Prince Consort Road, London, S.W.7.
- ROGERS, B. A., B.S., M.S., Ph.D., Senior Metallurgist, Institute for Atomic Research, Iowa State College, Ames, Iowa, U.S.A.
- STEVEN, Gary, B.S., M.S., Research Metallurgist, Armour Research Foundation, 35 W. 33rd Street, Chicago 16, Ill., U.S.A.
- TERRY, William Joseph, Chairman and Managing Director, London Electric Wire Company and Smiths, Ltd., 24 Queen Anne's Gate, London, S.W.1.

PERSONAL NOTES

As Junior Members

- CRAIK, Robert Laidlaw, B.Sc., A.R.T.C., Postgraduate Student, Metallurgy Department, Royal Technical College, Glasgow, C.I.
 MARTON, Stephen, B.Met., Research Metallurgist, Sheepbridge Engineering, Ltd., Chesterfield, Derbyshire.
 WRAGG, Vernon, B.Met., Assistant Lecturer in Metallurgy, County Technical College, Wednesbury, Staffs.

As Student Members

- APPLETON, Arthur Stanley, Student of Metallurgy, University of Liverpool.
 BAIRD, J. Sheila M., Assistant Metallurgist, Bull's Metal and Marine, Ltd., Bulldale Street, Glasgow, W.4.
 BAKER, Dennis Walter Clifford, B.Sc., Research Metallurgist, Development and Research Department, The Mond Nickel Co., Ltd., Bashley Road, London, N.W.10.
 BEAN, John Kenneth, Student of Metallurgy, University of Leeds.
 BONHAM, Ian C., Student of Metallurgy, University of Leeds.
 CLARE, John William Henry, Student of Metallurgy, University of Birmingham.
 GOUGH, John Richard Cox, B.Sc., Scientific Officer, Ministry of Supply Establishment, Aldermaston, Berks.
 JOPLING, John Denis, Student of Metallurgy, University of Leeds.
 KING, Robert James, Student of Metallurgy, Constantine Technical College, Middlesbrough.
 LIVEY, D. T., B.Sc., A.R.T.C., Research Student, Metallurgy Department, Royal Technical College, Glasgow, C.I.
 MEHD, Dinesh P., Student of Metallurgy, University of Leeds.
 PEARCE, Jai, Student of Metallurgy, College of Mining and Metallurgy, Benares Hindu University, Benares, U.P., India.
 PUCKNELL, David John, L.I.M., Apprentice, Royal Ordnance Factory, Nottingham.
 SHARP, John David, Student of Metallurgy, University of Cambridge.
 TATE, Reginald, B.Met., Student of Metallurgy, National Testing Laboratory, Winnipeg, Manitoba, Canada.
 TAYLOR, J. L., B.Sc., Student of Metallurgy, University College, Cardiff.
 WEST, John Michael, Student of Metallurgy, University of Cambridge.
 WRIGHT, Gordon Cunliffe, Student of Metallurgy, University of Leeds.

Representation on Other Bodies

Dr. C. J. SMITHELLS has been appointed to be the Institute's representative on the Parliamentary and Scientific Committee, in succession to the late Sir William Griffiths.

Colonel Sir PAUL GUETERBOCK and Mr. H. W. L. PHILLIPS have been reappointed as the Institute's representatives on the Empire Council of Mining and Metallurgical Institutions.

Mr. W. A. BAKER has been appointed as representative of the Institute in connection with the publication of "Acta Metallurgica", in succession to the late Sir William Griffiths.

"Metallurgical Abstracts" Volumes Wanted

The Institute does not now require any more copies of the monthly parts of the *Journal and Metallurgical Abstracts* for 1940. The following monthly parts are, however, still required, and the Institute will pay 7s. 6d. for each copy in good condition.

1941: July, Aug.

1942: July, Aug., Oct.

1943: May, July, Aug., Sept., Oct.

The Institute will also pay £1 each for bound volumes, in good condition, of *Metallurgical Abstracts* 1940 (Vol. 7), 1941 (Vol. 8), 1942 (Vol. 9), 1943 (Vol. 10).

Copies offered for sale should be addressed to the Secretary.

Members' Addresses Missing

The Secretary has lost touch with the following members, and would be glad to receive information regarding their present whereabouts and addresses:

Name	Last known address
ATKINS, L. J.	c/o W. B. Stagg Macey, Box 55, Ndola, Northern Rhodesia.
BRITTON, J.	14 St. Albans Road, Swansea. (<i>Student Member.</i>)
CLARK, R.	15 Lindsey Avenue, Ontario, Canada. (<i>Junior Member.</i>)
DODRIDGE, N. R.	30 Joydon Drive, Chadwell Heath, Essex.
ELLIETHY, N. F.	Zaid St. 12, Prince Mohamed Ali Street, Cairo, Egypt.
HALLIWELL, V. T. H.	66, Bromwich Street, Haulgh, Bolton, Lancs. (Now believed to be in Australia.)
KOSTROUN, Ing. V.	c/o Sandrik, Mikulasovice, Czechoslovakia.
McKNIGHT, I. B.	43 Halesworth Road, Lewisham, London, S.E.13.
MOORBY, F. H.	P.O. Box 9587, Johannesburg, South Africa.
NAOR, Ing. P.	53 Lightwoods Hill, Birmingham, 41. (<i>Student Member.</i>)
PRYTHERCH, W. E.	"Little Hockeridge", Ashley Green, Chesham, Bucks.

PERSONAL NOTES

MR. R. W. ADAM has been awarded the B.A. degree of Cambridge University and has taken up a post in the Research Laboratories of Imperial Chemical Industries, Ltd., Metals Division, Birmingham.

PROFESSOR DR. P. BRENNER has been elected President of the Deutsche Gesellschaft für Metallkunde in succession to Professor Dr. G. Masing.

MR. D. J. BULLIVANT has been appointed a Director of Shardal Castings, Ltd., Inge Street, Birmingham 5.

MR. A. C. J. BURNINGHAM has resigned his Directorship of Durham Chemicals, Ltd., and Associated Companies, and has joined the Board of The Eaglescliffe Chemical Company, Eaglescliffe, Co. Durham.

MR. JOHN CARTLAND resigned his directorships of Fry's Metal Foundries, Ltd., and The Eyre Smelting Co., Ltd., on 31 December. He will continue to act as a Consultant to the Fry Organization, with which he has been connected for 33 years. Mr. Cartland, who is a Past-Chairman of the London Local Section, served as an Ordinary Member of Council of the Institute from 1940 to 1947 and as a Vice-President from 1947 to 1950.

NEWS OF LOCAL SECTIONS AND ASSOCIATED SOCIETIES

DR. F. A. FOX has joined the Australian Government Department of Supply as Superintending Scientist in charge of the Department's Chemical and Physical Research Laboratories, Maribyrnong, Victoria. His address is: c/o Department of Supply, 339 Swanston Street, Melbourne, Australia.

DR. G. E. GARDAM is the first recipient of the Hothersall Medal of the Institute of Metal Finishing.

DR. P. GREENFIELD is now a Research Associate in the Department of Metallurgy at the University of Illinois, Urbana, Ill.

DR. J. L. HAUGHTON acted as Secretary to a group of metallurgists from various European countries that recently visited the United States under the auspices of the Organization for European Economic Co-operation to study productivity in the American magnesium industry.

MR. S. T. M. JOHNSTONE has returned to the Aeronautical Research Laboratories, Melbourne, after working for a time at the National Physical Laboratory, Teddington.

MR. E. F. MAILLARD was a member of a team that recently visited the United States to study productivity in the magnesium industry.

MR. R. J. MAITLAND is now Lecturer in Metallurgy at the Borough Polytechnic, London, S.E.1.

PROFESSOR R. F. MEHL (Corresponding Member to the Council for the United States) has been awarded the Gold Medal of the American Society for Metals.

MR. N. M. MITCHELL has left Farnborough and returned to the Defence Research Laboratory, Maribyrnong, Victoria, Australia.

DR. S. MOCARSKI has left England and taken a post with the General Electric Company, Toronto, Canada.

DR. J. N. PRATT has resigned his post as Research Fellow in the Department of Metallurgical Engineering, University of Toronto, to become I.C.I. Research Fellow in the Department of Metallurgy, Manchester University.

MR. A. PRINCE has been appointed Lecturer in Metallurgy at University College, Southampton.

MR. P. ROWLEY has been appointed Metallurgist to The Massey-Harris Co., Ltd., Kilmarnock.

MR. M. B. SANDERS has been awarded the B.Sc. degree of the University of Wales and is now in the employ of the Bristol Aeroplane Co., Ltd.

DR. AMOS J. SHALER has been appointed Professor of Metallurgy and Chief of the Division of Metallurgy at the Pennsylvania State College. During 1951 Dr. Shaler served as Scientific Liaison Officer with the U.S. Office of Naval Research in London, and since then he has been Associate Professor of Metallurgy at the Massachusetts Institute of Technology.

MR. H. J. SHARP, Chief Chemist and Metallurgist to Hoover, Ltd., Perivale, has been awarded the degree of M.Sc. by London University for a thesis on die-casting.

SIR ARTHUR SMOUT (Past-President) has recently received the City and Guilds of London Institute Insignia Award in Technology from the President of the Institute, The Duke of Edinburgh. The Award, which has just been established, is intended to be a mark of distinction for those who have combined with a sound practical training an adequate knowledge of the fundamental scientific principles of their industry, and who possess a capacity for leadership and administration.

PROFESSOR CYRIL STANLEY SMITH (Honorary Corresponding Member to the Council for the United States) has been awarded the Francis J. Clamer Medal by the Franklin Institute for his metallurgical contribution to the development of atomic energy during and since World War II.

MR. B. N. H. THORNELY has returned to England from Canada.

MR. J. F. WHITFIELD has relinquished his post as Chief Engineer of Birmetals, Ltd., to take up the appointment of General Manager of B. Thornton, Ltd., Huddersfield.

MR. M. E. WILLIAMS has resigned his post with McKechnie Bros., Ltd., and taken up an appointment at the Widnes works of Thomas Bolton and Sons, Ltd., as Superintendent of the Smelting and Refining Department.

Death

The Editor regrets to announce the death of:

DR. GILBERT HENRY GULLIVER on 24 October. He was an Original Member of the Institute and until his retirement he was associated with David Kirkaldy and Son, London.

NEWS OF LOCAL SECTIONS AND ASSOCIATED SOCIETIES

Birmingham Local Section

The Birmingham Local Section is arranging to hold, on Friday, 27 February 1953, an all-day meeting at The College of Technology, Suffolk St., Birmingham, when papers concerned with "Making the Best of Metals (Resources, Recovery, Refining, Uses)" will be presented.

An introductory address will be given by Mr. R. Lewis Stubbs, O.B.E., on "The Resources of Non-Ferrous Metals" and other papers have been promised by Mr. T. Burchell, Mr. S. Hands, Dr. V. Kondic, Mr. H. J. Miller, and Dr. E. Scheuer. There will be an open discussion during the afternoon session, when short supplementary contributions will be welcomed.

A synopsis of the papers will be sent to all who register for the meeting (registration fee 7s. 6d., lunch 8s. 6d.). Communications and enquiries should be addressed to the Hon. Secretary, Mr. A. W. Matthews, 124 Hay Green Lane, Bournville, Birmingham 30.

London Local Section

At a meeting of the Section held at 4 Grosvenor Gardens, London, S.W.1, on 2 October, Dr. C. E. RANSLEY of The British Aluminium Co., Ltd., delivered his Chairman's Address entitled:

Some Useful Techniques in Metallurgical Research

The talk was mainly concerned with experimental methods for the determination of the equilibrium constitution of alloys, and some of the work described has not been published.

The lecturer said that for the investigation of phase boundaries in certain solid alloy systems, a new "sandwich" technique had proved very useful. In this, alloys were prepared with particular phases segregated into layers by hot rolling together plates of appropriate compositions; the composite material was rolled down to thin sheet, annealed until equilibrium was established by diffusion, and the final distribution of elements then determined by analysis.

Reference was made to the thermal analysis of alloys, and attention drawn to the advantages of C. S. Smith's constant-heat-flow method. A form of apparatus, which had been constructed for cooling-curve determinations on aluminium alloys, was described, and some features of the inverse-rate curves obtained with it were discussed.

The speaker said that constitutional problems could frequently be attacked by indirect methods; the absorption of hydrogen by solid alloys, for example, was sometimes instructive, and he described a high-vacuum analysis system capable of dealing with very small volumes of gas, which was very suitable for such measurements. The application of this technique was illustrated by reference to some work on the aluminium-sodium and aluminium-silicon-sodium alloys.

This type of vacuum system was also the basis of a convenient apparatus for measuring the gas content of metals, and a brief description was given of the procedures for determining the hydrogen present in aluminium and aluminium alloys, and mechanically extracting gas from blisters in wrought material.

JOINT ACTIVITIES

Joint Committee on Metallurgical Education

The Joint Committee on Metallurgical Education of the Iron and Steel Institute, the Institution of Mining and Metallurgy, the Institute of British Foundrymen, the Institute of Metals, and the Institution of Metallurgists has recently published a 56-page report on "The Education and Training of Metallurgists". Copies are available from the Secretary of the Committee, 4 Grosvenor Gardens, London, S.W.1.

Mond Nickel Fellowships Awards

The Mond Nickel Fellowships Committee has announced the following awards for 1952:

A. G. DUCE (Joseph Lucas (Gas Turbine Equipment), Ltd.) to study in the United Kingdom, the Continent, the U.S.A., and Canada, the metallurgy and testing of materials, especially in sheet form, developed for high-temperature service, and the techniques employed in the manufacture of the combustion systems of gas-turbine engines.

F. G. HORTON (National Foundry College, Wolverhampton) to study casting production methods in the United Kingdom and on the Continent, with special reference to shell moulding, centrifugal casting, and sand-cement moulding.

P. KEMPSON (Henry Wiggin and Co., Ltd.) to study the development, application, and control of ferrous and non-ferrous melting and ingot-casting processes in the United Kingdom, on the Continent, the U.S.A., and Canada.

H. A. LONGDEN (Steel, Peech, and Tozer) to study metallurgical control methods in the United Kingdom, on the Continent, the U.S.A., and Canada, with special reference to open-hearth slag and temperature control.

DIARY

The Institute

8 January. Informal Discussion on "Rolls and Their Maintenance in the Non-Ferrous Metals Industry". (The University, Birmingham 15, at 11.30 a.m.). Before the meeting there will be a visit to the Aitchison Metallurgical

Laboratories, The University, Birmingham 15, at 10.30 a.m.

Local Sections and Associated Societies

- 13 January. South Wales Local Section.** "The Metallurgical Problems Arising from Stratospheric Flight", by Major P. L. Teed. Official Visit of the President and Secretary to the Local Section. (Metallurgy Department, University College, Singleton Park, Swansea, at 6.30 p.m.)
- 19 January. Scottish Local Section.** Visit to Remington Rand, Ltd., Hillington, Glasgow.
- 21 January. Liverpool Metallurgical Society.** "Alloys Resistant to Oxidation and Creep at High Temperature", by Dr. S. J. Kennett. Joint Meeting with the North Wales Metallurgical Society. (Liverpool Engineering Society, 9 The Temple, Dale Street, Liverpool, at 6.30 p.m.)
- 21 January. London Local Section.** "Analysis of Metals by Spectroscopy", by Dr. A. C. Menzies. Joint Meeting with the London Section of the Society of Chemical Industry and the London and South-Eastern Counties Section of the Royal Institute of Chemistry. (Large Chemistry Theatre, University College, Gower Street, London, W.C.1, at 7.0 p.m.)
- 21 January. Manchester Metallurgical Society.** "Indentation Hardness", by Dr. D. Tabor. (Engineers' Club, Albert Square, Manchester, at 6.30 p.m.)
- 23 January. Sheffield Local Section.** "Observations on Electroplating Research and on Flatware Manufacture in the U.S.A.", by Dr. G. E. Gardam. Joint meeting with the Institute of Metal Finishing, Sheffield and North East Branch. (Grand Hotel, Sheffield, at 6.30 p.m.)
- 26 January. North East Metallurgical Society.** Discussion on "The Training of a Metallurgist". Opening Speaker: Dr. A. D. Merriman. (Cleveland Scientific and Technical Institution, Middlesbrough, at 7.15 p.m.)
- 29 January. Birmingham Local Section.** Discussion on "Modern Technique in Spectrographic Analysis". (James Watt Memorial Institute, Great Charles Street, Birmingham 3, at 6.30 p.m.)
- 3 February. Oxford Local Section.** Symposium on Metal Pressing: (1) Film supplied by the Aluminium Development Association. (2) A speaker from Aluminium Laboratories, Limited. (3) A speaker from Pressed Steel Co., Ltd. (Black Hall, St. Giles, Oxford, at 7.0 p.m.)
- 4 February. Manchester Metallurgical Society.** "Some New Laboratory Techniques", by Dr. F. Ashworth, F. G. Haynes, and J. Johnson. (Engineers' Club, Albert Square, Manchester, at 6.30 p.m.)
- 5 February. Birmingham Local Section.** "Substitution", by Professor A. J. Murphy. (James Watt Memorial Institute, Great Charles Street, Birmingham 3, at 6.30 p.m.)
- 5 February. Leeds Metallurgical Society.** "The Continuous-Casting Processes", by Dr. E. Scheuer. (Chemistry Department, The University, Leeds 2, at 7.15 p.m.)
- 5 February. London Local Section.** "Titanium", by Dr. N. P. Allen. (4 Grosvenor Gardens, London, S.W.1, at 7.0 p.m.)
- 9 February. Scottish Local Section.** "The Production of Non-Ferrous Castings", by R. F. Hudson. (Institution of Engineers and Shipbuilders in Scotland, 39 Elmbank Crescent, Glasgow, C.2, at 6.30 p.m.)

APPOINTMENTS VACANT

- 10 February. South Wales Local Section.** "Dislocations in Crystals", by Dr. B. A. Bilby (University College, Metallurgy Department, Singleton Park, Swansea, at 6.30 p.m.)
- 12 February. Liverpool Metallurgical Society.** "Nucleation in Metals and Alloys", by J. H. O. Varley. (Liverpool Engineering Society, The Temple, Dale Street, Liverpool, at 6.30 p.m.)
- Other Societies**
- 14 January. Institute of British Foundrymen, Southampton Section.** "Synthetic Resins in the Foundry", by P. G. Pentz. (Southampton Technical College, St. Mary Street, Southampton, at 7.0 p.m.)
- 15 January. Institution of Mining and Metallurgy.** General Meeting. (Rooms of the Geological Society, Burlington House, Piccadilly, London, W.1, at 5.0 p.m.)
- 16 January. Institution of Mechanical Engineers.** "Welding in Marine Engineering", by H. N. Pemberton. (Institution of Mechanical Engineers, Storey's Gate, St. James's Park, London, S.W.1, at 5.30 p.m.)
- 19 January. Institute of Metal Finishing, London Branch.** "The Economics of Industrial Painting", by J. N. T. Adcock. (Northampton Polytechnic, St. John Street, London, E.C.1, at 6 p.m.)
- 19 January. Institution of Production Engineers, North-Eastern Section.** "Drop Stamping", by A. Chilton. (Neville Hall, Westgate Road, Newcastle-upon-Tyne, at 7.0 p.m.)
- 20 January. Society of Chemical Industry, Corrosion Group.** "The Electrochemical Behaviour of Metal and Corrosion", by Dr. M. Pourbaix. (The Chemical Society, Burlington House, London, W.1, at 6.30 p.m.)
- 21 January. Institute of British Foundrymen, East Midlands Branch.** "System of Studying Casting Defects", by G. W. Nicholls and D. T. Kershaw. (College of Arts and Crafts, Derby, at 6.0 p.m.)
- 21 January. Institution of Production Engineers, South Essex Sub-Section.** "Modern Electroplating and Metal-Finishing Processes", by H. Cann. (Ilford Bowling Club, nr. Ilford Station, Essex, at 7.30 p.m.)
- 22 January. Institute of Welding, North London Branch.** "The Joining of Aluminium and Its Alloys", by W. V. Binstead. (The Polytechnic, Regent Street, London, W.1, at 7.30 p.m.)
- 22 January. Institution of Production Engineers, London Section.** "Recent Developments in Metal Machining", by K. J. B. Wolfe. (Royal Empire Society, Northumberland Avenue, London, W.C.2 at 7.0 p.m.)
- 24 January. Institute of British Foundrymen, Bristol and West of England Branch.** "Mechanical Aids in the Foundry", by J. Blakiston. (Grand Hotel, Bristol, at 3.0 p.m.)
- 28 January. Institute of British Foundrymen, London Branch.** "Runners and Risers". Three papers by E. D. Daybell, P. A. Russell, and R. W. Ruddle. (Waldorf Hotel, London, W.C.2, at 7.30 p.m.)
- 29 January. Royal Aeronautical Society.** "Titanium", by Major P. Litherland Teed. (Institution of Mechanical Engineers, Storey's Gate, London, S.W.1, at 6.0 p.m.)
- 30 January. Institute of British Foundrymen, Falkirk Section.** "Synthetic Resins", by R. Carswell. (Temperance Café, Lint Riggs, Falkirk, at 7.30 p.m.)
- 3 February. Institute of Metal Finishing, Midland Branch.** "Properties of Electrodeposits in Relation to Engineering Requirements", by R. A. F. Hammond. (James Watt Memorial Institute, Great Charles Street, Birmingham 3, at 6.30 p.m.)
- 5 February. Society of Chemical Industry, Corrosion Group.** "Atmospheric Corrosion and Atmospheric Pollution", by Dr. J. C. Hudson and J. F. Stanners. Joint meeting with the Society of Chemical Industry, Nottingham Section. (Gas Showrooms, Parliament Street, Nottingham, at 7.15 p.m.)
- 12 February. Institute of Metal Finishing, North-West Branch.** "The Electrodeposition of Tin and Its Alloys", by Dr. J. W. Cuthbertson. (Engineers' Club, Albert Square, Manchester, at 7.30 p.m.)

APPOINTMENTS VACANT

A VACANCY exists in a large engineering company in the Midlands for a tropicalization expert. The successful applicant must be an engineer with at least seven years' industrial experience, and he should also possess a considerable knowledge of chemistry and metallurgy. He will be required to investigate and initiate processes to prevent corrosion of manufactured articles being shipped abroad. Please reply, quoting reference AJBH, to Box 344, The Institute of Metals, 4 Grosvenor Gardens, London, S.W.1.

COMPETENT ANALYST required with several years' experience of Metallurgical Analysis, for Aluminium Alloy Manufacturers in North London area. Age preferably 20-30 years. Write giving full particulars, Box 346, The Institute of Metals, 4 Grosvenor Gardens, London, S.W.1.

EXPERIENCED CHIEF CHEMIST required for mine assay office in Cyprus. Salary not less than £100 per month, but according to qualifications and experience. Free quarters, family passage paid. Three years' initial contract renewable for suitable man. Three months' paid home leave after three years. Write Box No. 345, The Institute of Metals, 4 Grosvenor Gardens, London, S.W.1.

METALLURGICAL CHEMIST required for East London factory. An interesting and progressive position is offered to the right applicant and entails process control investigational work, using chemical metallurgical analytical methods. B.Sc. preferred, but not essential.

Age 25-35. Commencing salary in the range £600-£700 p.a. Write Box Z.X.511, Deacon's Advertising, 36 Leadenhall Street, E.C.3.

METALLURGIST, with University qualifications, required for development work on light alloy welding in metallurgical research department. Preference given to applicant with some industrial experience in light alloy welding or founding. Excellent salary for suitable applicant. Apply in writing to the Personnel Manager, Murex Welding Processes, Ltd., Waltham Cross, Herts.

METALLURGIST, with University qualifications, required for investigational work on problems associated with the welding of steels. Some experience in research or industry essential and a knowledge of arc welding an advantage. Excellent salary and prospects for suitable applicant. Apply in writing to the Personnel Manager, Murex Welding Processes, Ltd., Waltham Cross, Herts.

MULLARD BLACKBURN WORKS, LTD., require a metallurgist for laboratory investigations into the properties of, and the manufacturing processes for, tungsten and molybdenum wires. Applicants should possess a degree in metallurgy or the Associateship of the Institution of Metallurgists; experience in powder metallurgy or previous work on the recrystallization of metals would be an advantage, but a new graduate would be considered for the post. Salary in accordance with age and qualifications. Apply in writing, giving full details, to the Works Personnel Officer, Mullard Blackburn Works, Ltd., Philips Road, Blackburn, Lancs.